



# Fox Delta

Amateur Radio Projects & Kits

FD- ECON

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Technical Details Note: DS1085 Econ Oscillator Programmer & Signal Generator

## Econ Programmer & Generator Overview:

Every Amateur Radio Station requires a reliable signal source for experimentation. So far we have been stuck-up with various LC/Crystal/Synthesizer type Generators & function generators.

Recent Development in ICs has changed our views for these requirements and has made our lives much easier. One such example is Maxim Dallas Econ oscillator chip DS1085 designed to replaced Quartz Crystal Oscillators.

DS1085 is used in this project. It can generate from 1MHZ to 133MHZ at various steps. Signal Generated may be used for various purposes. However, please keep in mind the frequency tolerance of this chip before using it in your project.

## This programmer addresses two objectives:

It can program your DS1085 chip located elsewhere on your project board and at the same time, you can reprogram installed DS1085 in this programmer for required frequency of test. Board has a small Isolation/Buffer RF amplifier and a Low Pass filter.

With this, you have a programmer for your "In Project Econs" and a Signal Generator for producing test frequencies. A LPF of 40MHZ is provided and there is an option to either bypass LPF or you may insert a suitable LPF between headers for your specific needs.

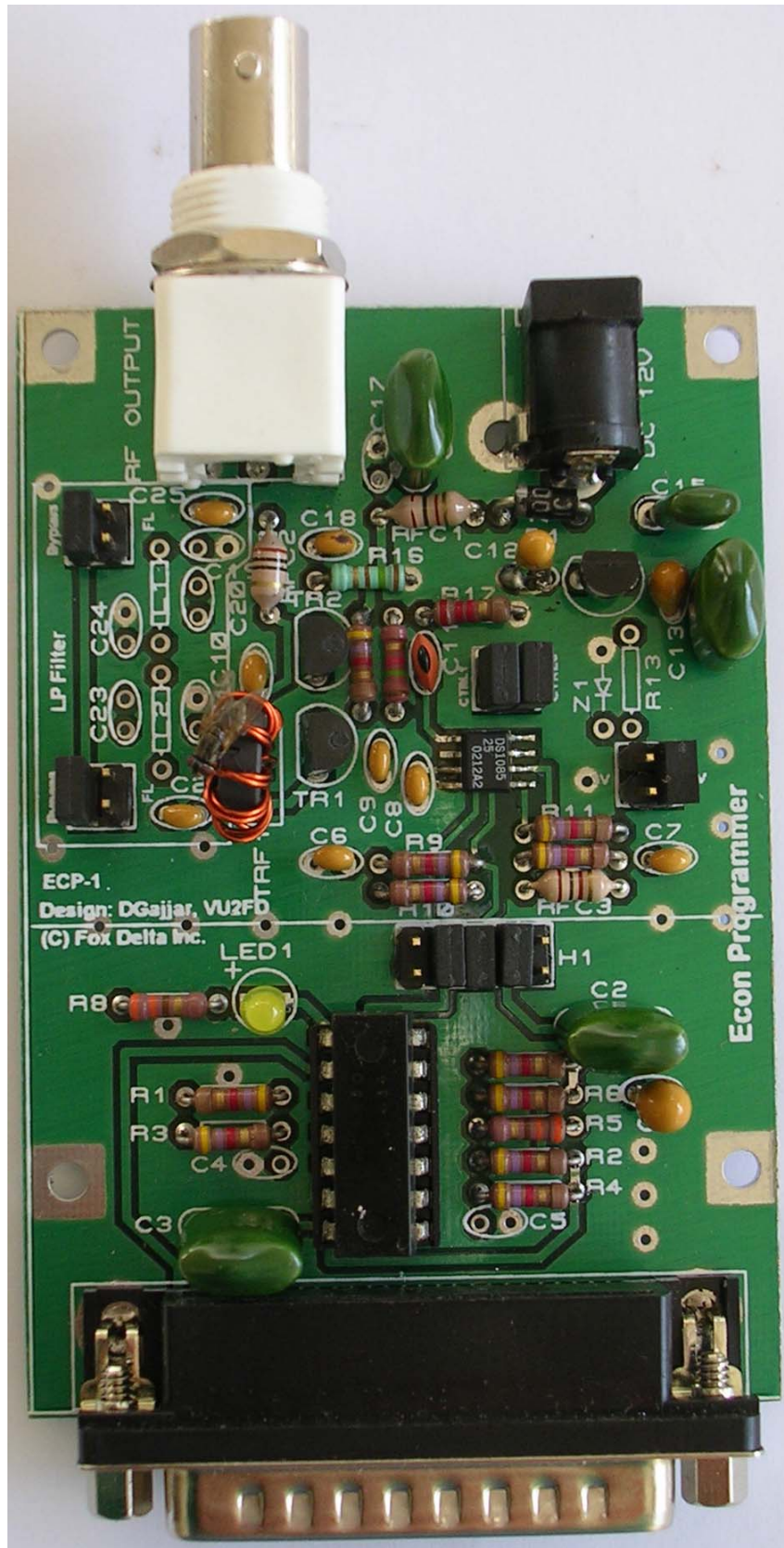
Using this programmer with supplied free parallel port software, you have all doors of developments open for your projects. You will have no hesitation to use an oscillator at 9.00015, which you always wanted to have, forgetting difficulties in getting a quartz crystal.

## Programmer:

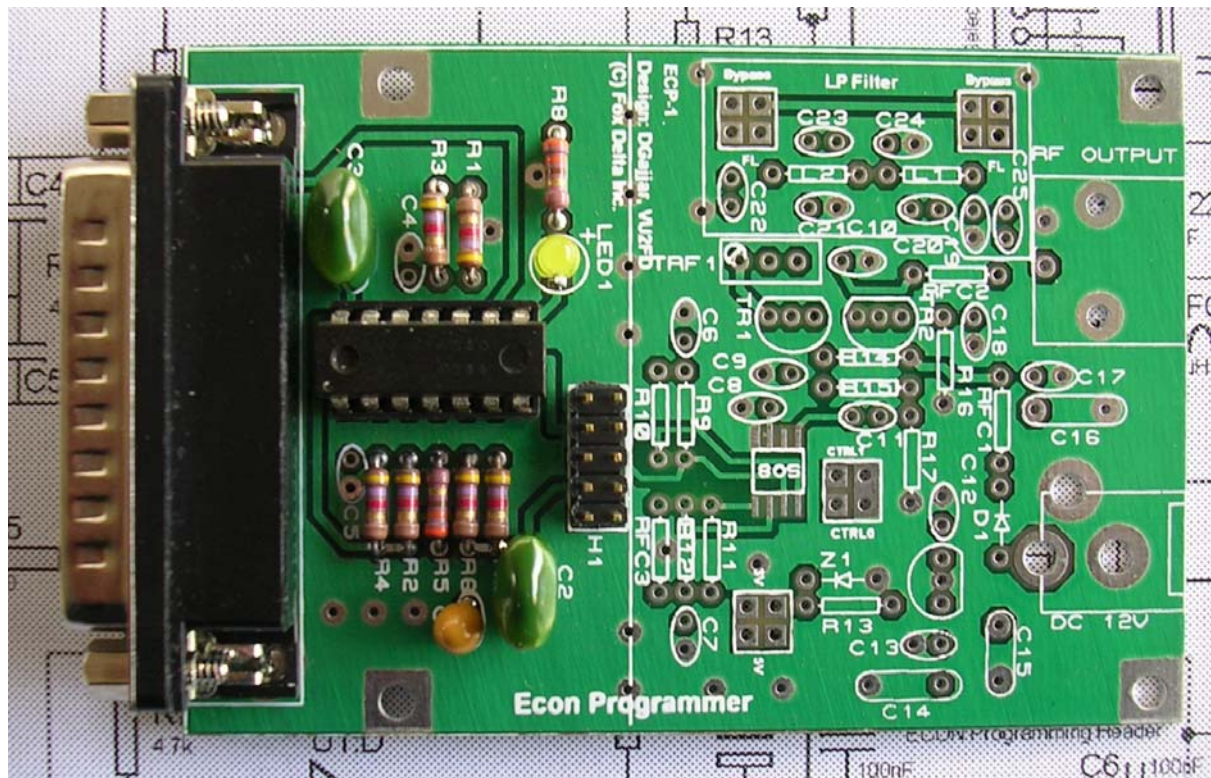
Most Receiver & Transmitter projects I am designing, I am using ECON Oscillators. For this, I wanted a simple programmer.

As required by Econ Chip, power to programmer must be from the econ under programming. Keeping in view this, this programmer uses a 10pin header socket for programming. However, if you wish, you may use a 5pin plug & socket for programming out-of-the board Econ.

View of the Assembled ECON Programmer & Signal Generator:



Picture of the Econ Programmer only:



Only left hand side PCB is populated. This programmer will receive +5V or 3.3V from ECON Oscillator under programming, fitted elsewhere on your project. Kit is supplied with above pictured PCB & all components showed above.

#### Software:

Maxim Dallas has provided simple software to control econ chips thru parallel port. For programming, type of chip is important. At present 10, 25 & 50KHZ econ are available. If you want smaller steps there is a chip DS1085L, which has smaller steps to 5khz. But then maximum upper limit of the chip is limited to 66MHZ.

If DS1085L is used on this kit (Generator part) it is important that you install 3.3V Zener (Z1) & series resistor for Zener. (R13)

Programming of DS1085 & DS1085L is same. In addition you may also program other similar chips. Please visit: <http://maxim-ic.com> for more details.

You may download software at: <http://products.foxdelta.com/econ/parallelport.zip> and there is a 2 wire control software at <http://products.foxdelta.com/econ/pards2w.zip>



### **Circuit Details:**

From D25 connector to H2, is a simple circuit with open collector gates (75LS05) as suggested by Maxim Dallas.

Everything on the right hand side of the H2 is ECON Generator. By applying 12V DC at the power socket and installing jumpers at H2 – 1, 2, 3 and 4, you can program onboard econ for your required frequency.

Ensure that you have selected proper option of operating voltages to ECON. For DS1085 it should be +5V and for DS1085L it should be +3.3V. Use Header H1 for this purpose.

While ordering a kit be specific in this requirement, as alternatively, I will include which so ever chip I have in stock.

Isolation amplifier is using 2n918 and drives a bifilar WB Toroid.

### **LPF:**

I do not supply components for LPF because I do not know how you would like to build your generator & at what frequency you would require a LPF.

In the kit supplied, “Bypass” is achieved thru header selection. Under this condition, output from transistors goes directly to BNC output connector.

### **RF Transformer TRF1:**

This is a Bi-filler wideband transformer using Amidon 37size, 61 materials Toroidal core. Winding details: For general WBA application 7 bifilar turns of #24 (twisted) would do good job.

Project page is at: <http://products.foxdelta.com/econ.htm>

I hope this project & kit would be useful to many home-brewers.

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<http://www.foxdelta.com>